

ADDITIONAL NOTES ON THE GENUS *VITEX*. XXIII

Harold N. Moldenke

VITEX Tourn.

Additional bibliography: J. Burm., Thes. Zeyl. 209--210, 229, [238], [248], & [250], pl. 109. 1737; Blume, Cat. Gewass., imp. 1, 86. 1823; Desf., Cat. Pl. Hort. Paris., ed. 3, 391--392. 1829; Reichenb., Deutsch. Bot. [Repert. Herb. Nom.] 108. 1841; Walp., Repert. Bot. Syst. 4: 81--92. 1845; Lindl., Veget. Kingd., ed. 1, 664 (1846), ed. 2, 664 (1847), and ed. 3, 664. 1853; Bocq. in Baill., Rec. Obs. Bot. 3: 178, 180, 181, 184, 185, & 252--254. 1863; F. Muell., Fragm. 6: 152--153. 1868; Lindl. & Moore, Treas. Bot., imp. 1, 1: 30 (1870), imp. 1, 2: 1222 (1870), imp. 2, 1: 30 (1876), and imp. 2, 2: 1222. 1876; Bailey & Tenison-Woods, Proc. Linn. Soc. N. S. Wales 1880: 174. 1880; Lindl. & Moore, Treas. Bot., imp. 3, 1: 30 (1884) and imp. 3, 2: 1222. 1884; Durand, Gen. Phan. 32. 1888; Coll. & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 110--111. 1890; Warb., Engl. Bot. Jahrb. 10: 428 & 429. 1890; Hook. f., Curtis Bot. Mag. 117: pl. 7187. 1891; Lace & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 296 & 297. 1891; Ceron, Cat. Pl. Herb. Manila 133. 1892; Hemsl., Journ. Linn. Soc. Lond. Bot. 30: 187. 1894; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 132--144, 169--172, & 178, fig. 64 A--D. 1895; S. Moore, Trans. Linn. Soc. Lond. Bot., ser. 2, 4: 440. 1895; Reinecke, Engl. Bot. Jahrb. 25: 671. 1898; Lindl. & Moore, Treas. Bot., imp. 4, 1: 30 (1899) and imp. 4, 2: 1220. 1899; Burkill, Journ. Linn. Soc. Lond. Bot. 35: 50. 1901; Boorsma, Bull. Inst. Bot. Buitenz. 14: 35. 1902; E. D. Merr., Bull. Philip. Forest. Bur. 1: 51--52. 1903; Ridl., Journ. Roy. Asiatic Soc. Straits 57: 84 (1910) and 59: 156--157. 1911; Koord., Exkursionsfl. 3: 132, 136--137, & 495. 1912; E. D. Merr., Philip. Journ. Sci. Bot. 7: 165 & 343--344. 1912; C. B. Robinson, Philip. Journ. Sci. Bot. 7: 415. 1912; Heyne, Nutt. Plant. Ned. Ind., ed. 2, 1: 24 (1927). ed. 2, 2: 1313 & 1315--1320 (1927), and ed. 2, 3: 1646. 1927; Ekman, Arkiv Bot. Stockh. 22A: 51 & 110. 1929; White, Journ. Arnold Arb. 10: 264. 1929; Mold., Phytologia 1: 101--104. 1934; Bakh., Journ. Arnold Arb. 16: 74--75. 1935; Beer & Lam, Blumea 2: 228. 1936; Corner, Wayside Trees, ed. 1, pl. 216. 1940; Gentry, Carnegie Inst. Wash. Publ. 527. 1942; Lemée, Dict. Descrip. Syn. Gen. Pl. Phan. 8b: 656. 1943; Blume, Cat. Gewass., imp. 2, 86. 1946; Corner, Wayside Trees, ed. 2, 686, 695, & 706--711, text fig. 256. 1952; Basu & Singh, Indian Journ. Pharm. 6: 71. 1954; Lemmon & Sherman, Fls. World 104, pl. 232 & 234. 1958; Venkataraman, Prog. Chem. Org. Nar. Prod. 17: 1. 1959; Balakrish., Ramanath., Seshadri, & Venkataram., Proc. Roy. Soc. 268A: 1. 1962; Jurd, Chem. Flavon. Comp. 1962: 107. 1962; White & Angus, Forest Fl. N. Rhodes. 365, 370--372, & 455. 1962; Diaconescu, Act. Bot. Hort. Bucur. 1961: 1040. 1963; Egler, Bol. Mus. Para. Goeldi, ser. 2, Bot. 18: 80.

1963; Salmon, N. Zeal. Pl. Col. 77, pl. 216 & 217. 1963; Beard, Descrip. Cat. W. Austral. Pl., ed. 1, 93. 1965; Mabry, Kagan, & Rösler, Phytochem. 4: 177. 1965; Lourteig, Taxon 15: 28. 1966; Garms, Nat. Hist. Eur. 109. 1967; Harborne, Compar. Biochem. Flavon. 57 & 228. 1967; Meijer, Bot. Bull. Herb. Forest Dept. Sabah 10: 223. 1968; Beard, West Austral. Pl., ed. 2, 113. 1970; Chippendale, Proc. Linn. Soc. N. S. Wales 96: 256. 1971; Crockett, Landsc. Gard. 120. 1971; Crockett, Flow. Shrubs 27 & 145. 1972; T. B. Muir, Muelleria 2: 167. 1972; Bennett, Fl. Howrah 303 & 306. 1976; Bianchini & Corbetta, Health Pl. World 119. 1977; Kodanda Rao & E. & B. Venkata Rao, Biol. Abstr. 64: 6284. 1977; Allen, Pruning Graft. 152. 1978; Heywood, Flow. Pl. World 237 1978; Hsiao, Fl. Taiwan 4: 410 & 432--435, pl. 1060. 1978; A. C. Sm., Allertonia 1: 414. 1978; Vedel, Trees Shrubs Med. 88 & 89. 1978; Benson, Pl. Classif., ed. 2, 277. 1979; Horst in Westcott, Pl. Disease Handb., ed. 4, 717. 1979; Biswas & Maheshwari, Journ. Bomb. Nat. Hist. Soc. 77: 225. 1980; Hsiao, Fl. Taiwan 6: 122. 1980; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 468. 1980; Klein, Sellowia 32: 172. 1980; Lauener, Notes Roy. Bot. Gard. Edinb. 38: 453 & 485. 1980; Cronq., Integ. Syst. Classif. 923. 1981; Hickey & King, 100 Fam. Flow. Pl. 346--348. 1981; Mold., Phytologia 49: 161--182. 1981; Munz & Slausen, Ind. Illust. Living Things Outside N. Am. 69 & 429. 1981; Rogerson, Becker, Buck, & Long, Bull. Torrey Bot. Club 108: 503. 1981; Rooyen, Theron, & Grobbelaar, Journ. S. Afr. Bot. 47: 409, 421, & 441. 1981; Sharma, Shetty, Vivekan., & Pathakr., Journ. Bomb. Nat. Hist. Soc. 75: 33. 1981; Webb & Tracey in Groves, Austral. Veg. [81]. 1981; L. O. Williams, Ceiba 24: 333. 1981; Cronq. in S. P. Parker, Synop. Classif. Liv. Org. 1: 451. 1982; Janzen & Martin, Science 215: 23. 1982; Mold., Phytologia 50: 233, 238, 239, 242, 243, 245, 246, 248, 250--254, 261, 262, 266, 267, 269, 270, 425, 430, 508, & 512 (1982) and 51: 163. 1982.

The *Liesner & González 9451*, distributed as *Vitex* sp., is something in the *Bignoniaceae*, while *Steiermark & Berry 111972* is also probably non-verbenaceous.

VITEX ACUMINATA R. Br.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 86. 1845; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 172. 1895; F. M. Bailey, Queensl. Fl. 4: 1179 & 1180. 1901; Mold., Phytologia 49: 163. 1981; Webb & Tracey in Groves, Austral. Veg. [81]. 1981.

VITEX AGNUS-CASTUS L.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 90. 1845; Lindl., Veg. Kingd. 664. 1846; Bocq. in Baill., Rec. Obs. Bot. 3: 253. 1863; Lindl. & Moore, Treas. Bot., ed. 1, 1: 30 (1870), ed. 2, 1: 30 (1876), and ed. 3, 1: 30. 1884; Lace & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 296, 297, & 318. 1891; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 171, fig. 64 A--D, & 172. 1895; Lindl. & Moore, Treas. Bot., ed. 3, 1: 30. 1899; Koord., Excursions-

fl. 3: 136 & 495. 1912; Lemmon & Sherman, Fls. World 104, pl. 232 & 234. 1958; Diaconescu, Act. Bot. Hort. Bucur. 1961: 1040. 1963; Garms, Nat. Hist. Eur. 109. 1967; Crockett, Landsc. Gard. 120. 1971; Crockett, Flow. Shrubs 27 & 145. 1972; Bianchini & Corbetta, Health Pl. World 119. 1977; Vedel, Trees Shrubs Medit. 88 & 89. 1978; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 468. 1980; Mold., Phytologia 49: 163. 1981; Munz & Slauson, Ind. Illust. Living Things Outside N. Am. 69 & 429. 1981; Mold., Phytologia 50: 233, 239, 250, & 266. 1982.

Additional & emended illustrations: Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 171, fig. 64 A--D. 1895; Lemmon & Sherman, Fls. World 104, pl. 232 (in color) & 234 (in color). 1958; Garms, Nat. Hist. Eur. 109 (in color). 1967; Crockett, Landsc. Gard. 120 (in color). 1971; Crockett, Flow. Shrubs 27 (in color) & 145 (in color). 1972; Bianchini & Corbetta, Health Pl. World 119 (in color). 1977; Vedel, Trees Shrubs Med. 88 (in color). 1978.

The corollas are said to have been "light-purple" on *Bayliss BS. 6236* and the leaves "smell of lavender".

Diaconescu (1963) records the fungus, *Phoma viticis* Celott, as attacking this host in Romania.

Material of typical *V. agnus-castus* has been misidentified and distributed in some herbaria as *V. agnus-castus* var. *pseudo-negundo* Hausskn. and as *V. rehmanni* Gürke. On the other hand, the Perkins s.n. [Aug. 1, 1937], distributed as typical *V. agnus-castus* actually is its f. *latifolia* (Mill.) Rehd., while *Dinsmore s.n.* [July 11, 1912] is var. *pseudo-negundo* Hausskn.

Additional citations: SARDINIA: *vaccari 356* (It). UNION OF SOVIET SOCIALIST REPUBLICS: Turkmanskaya: *Nikitin & Ivanov s.n.* [18.06.1975] (Ba--385325). CULTIVATED: Alabama: *Whitehead 437* (It). California: *Burnham s.n.* [April 1896] (It). Ohio: *E. G. Hutchinson s.n.* [Sept. 22, 1934] (It). South Africa: *Bayliss BS. 6236* (Ba).

VITEX AGNUS-CASTUS f. *ALBA* (West.) Mold.

Additional bibliography: Mold., Phytologia 48: 416--417 (1981) and 50: 250 & 266. 1982.

VITEX AGNUS-CASTUS f. *CAERULEA* (Rehd.) Mold.

Additional bibliography: J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 468. 1980; Mold., Phytologia 48: 416 & 417. 1981.

VITEX AGNUS-CASTUS f. *LATIFOLIA* (Mill.) Rehd.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 90. 1845; Mold., Phytologia 48: 417 (1981) and 49: 177. 1981.

Peterson describes this plant as a branching shrub to 10 feet tall, the corollas "R[oyal] H[orticultural] S[ociety] Fan 2 Violet-Blue 93/B" and found it in flower in July.

Additional citations: CULTIVATED: Massachusetts: *Perkins s.n.* [Aug. 14, 1937] (It). Pennsylvania: *Peterson J.2370* (Ba--371549). MOUNTED ILLUSTRATIONS: Unnumbered color plate labeled "Vitex Macrophylla" (It).

VITEX AGNUS-CASTUS var. *PSEUDO-NEGUNDO* Hausskn.

Additional bibliography: Mold., *Phytologia* 48: 417, 485, & 487--489. 1981.

Recent collectors describe this plant as 1--3 m. tall, growing by water and in gravel in wadi beds, at 25 m. altitude, in flower in May and September, and in fruit in September.

Additional citations: ISRAEL: *Dinsmore s.n.* [Saron, July 11, 1912] (It). IRAQ: *Agnew & Barkley s.n.* [27.5.1962] (W--2897908). IRAN: *N. Miller 176* (Mi).

VITEX AGNUS-CASTUS f. *ROSEA* Rehd.

Additional bibliography: Mold., *Phytologia* 49: 164. 1981.

Jativa describes this plant as a "tree 14 ft. tall, 16 ft. wide, branches ascending-spreading, flowers pinkish-white", and found it in flower in August.

Additional citations: CULTIVATED: California: *Jativa 3136* [LASCA Acc. 58-8-1189] (Ba--376830).

VITEX AJUGAEFLORA Dop, Bull. Soc. Hist. Nat. Toulouse 57: 202--203, pl. 4. 1928.

Additional & emended bibliography: Dop, Bull. Soc. Hist. Nat. Toulouse 57: 202--203 & 209--211, pl. 4. 1928; Mold., *Phytologia* 49: 164. 1981.

Additional illustrations: Dop, Bull. Soc. Hist. Nat. Toulouse 57: opp. 202, pl. 4. 1928.

Dop (1928) states that this plant "C'est un arbre de 20 á 30 mètres; répandu en Cochinchine et dans le Sud de l'Annam". He lists the vernacular names, "binh ling ngs" and "feunang", and comments that "Pierre signale ce bois comme un bois dur, à coeur brun rougâtre quand il est fraîchement coupé. Poilane l'indique comme bon bois de construction."

VITEX ALTISSIMA L. f.

Additional synonymy: *Vitex altissima* ♂ *macrophylla* Walp., Repert. Bot. Syst. 4: 84. 1845.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 83--84. 1845; Bocq. in Baill., Rec. Obs. Bot. 3: 253. 1863; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 172. 1895; Sharma, Shetty, Vivekan., & Rathakr., Journ. Bomb. Nat. Hist. Soc. 75: 33. 1981; Mold., *Phytologia* 49: 164--165, 371, 372, 382, 383, & 440--442 (1981) and 50: 266. 1982.

Additional citations: INDIA: Karnataka: *Saldanha 13162* (Mi), *13425* (Mi), *13974* (Mi), *14365* (Mi).

VITEX ALTISSIMA f. *juv. ALATA* (Willd.) Mold.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 83. 1845; Mold., *Phytologia* 48: 418 (1981) and 49: 382, 383, & 442. 1981.

VITEX AMBONIENSIS Gürke

Additional bibliography: White & Angus, Forest Fl. N. Rhodes. 371. 1962; Mold., *Phytologia* 48: 418--419, 463, & 465 (1981) and 49: 376. 1981; Rooyen, Theron, & Grobbelaar, Journ. S. Afr. Bot.

47: 409, 421, & 441. 1981.

VITEX AMBONIENSIS var. *AMANIENSIS* Pieper

Additional bibliography: Mold., *Phytologia* 44: 386. 1979; Mold., *Phytol. Mem.* 2: 228 & 588. 1980.

VITEX AMBONIENSIS var. *SCHLECHTERI* Pieper

Additional bibliography: Mold., *Phytologia* 45: 480. 1980; Mold., *Phytol. Mem.* 2: 241 & 588. 1980.

VITEX ANDONGENSIS J. G. Baker

Additional bibliography: Mold., *Phytologia* 44: 386. 1979; Mold., *Phytol. Mem.* 2: 234 & 588. 1980.

VITEX ANGOLENSIS Gürke

Additional bibliography: Mold., *Phytologia* 44: 386. 1979; Mold., *Phytol. Mem.* 2: 234 & 588. 1980.

VITEX APPUNI Mold.

Additional bibliography: Mold., *Phytologia* 45: 480. 1980; Mold., *Phytol. Mem.* 2: 121, 123, 171, 457, & 588. 1980; Mold., *Phytologia* 49: 362 & 365. 1981.

Additional citations: VENEZUELA: Guárico: *Aristeguieta 6083* (N, W--2926022).

VITEX AUREA Mold.

Additional bibliography: Mold., *Phytologia* 44: 387. 1979; Mold., *Phytol. Mem.* 2: 251, 366, & 588. 1980.

VITEX AXILLARIS Wall.

Additional bibliography: Walp., *Repert. Bot. Syst.* 4: 91. 1845; Mold., *Phytologia* 44: 387. 1979; Mold., *Phytol. Mem.* 2: 275, 457, & 588. 1980.

VITEX BAKERI B. L. Robinson

Additional bibliography: Mold., *Phytologia* 44: 387--388 & 415. 1979; Mold., *Phytol. Mem.* 2: 202, 213, 457, & 588. 1980.

VITEX BALBI Chiov.

Additional bibliography: Mold., *Phytologia* 44: 388-390. 1979; Mold., *Phytol. Mem.* 2: 231 & 588. 1980.

VITEX BARBATA Planch.

Additional bibliography: Mold., *Phytologia* 44: 390 & 479. 1979; Mold., *Phytol. Mem.* 2: 200, 205--207, 209, 211, 216, & 588. 1980; Mold., *Phytologia* 49: 367. 1981.

VITEX BEFOTAKENSIS Mold.

Additional bibliography: Mold., *Phytologia* 44: 390. 1979; Mold., *Phytol. Mem.* 2: 251 & 588. 1980

VITEX BENTHAMIANA Domin

Additional bibliography: F. Muell., *Fragm.* 6: 15. 1868; Mold., *Phytologia* 45: 481. 1980; Mold., *Phytol. Mem.* 2: 339 & 588. 1980.

The Landsborough collection, cited below, was previously incorrectly cited by me as *V. trifolia* var. *subtrisecta* (Kuntze) Mold., a very closely related taxon.

Additional citations: AUSTRALIA: Northern Territory: *Landsborough s.n.* [Gulf of Carpenteria] (Pa).

VITEX BOJERI Schau.

Additional bibliography: Briq. in Engl. & Prantl, *Nat. Pflanzenfam.*, ed. 1, 4 (3a): 172. 1895; Mold., *Phytologia* 44: 392. 1979; Mold., *Phytol. Mem.* 2: 251 & 588. 1980.

VITEX BREVILABIATA Ducke

Additional bibliography: Egler, *Bol. Mus. Para. Goeldi*, ser. 2, Bot. 18: 80. 1963; Mold., *Phytologia* 49: 165. 1981.

Egler (1963) regards *Herb. Rio de Janeiro 311* as a "syntype" collection of this species, but actually the species is based only on no. 18954.

Additional citations: BRAZIL: Amazonas: *Prance, Berg, Bisby, Steward, Monteiro, & Ramos 18027* (W--2898198).

VITEX BUCHANANII J. G. Baker

Additional bibliography: White & Angus, *Forest Fl. N. Rhodes.* 371. 1962; Mold., *Phytologia* 49: 165 & 466. 1981.

The *Phillips 2159*, misidentified and distributed as *V. buchananii*, actually is *V. radula* Mildbr.

VITEX CALOTHYRSA Sandw.

Additional bibliography: Mold., *Phytologia* 49: 166 (1981) and 50: 245. 1982.

Bossio has found this species in fruit in March.

Additional citations: VENEZUELA: Amazonas: *Bossio 16* (E--2892148, N).

VITEX CANESCENS Kurz

Additional bibliography: Walp., *Repert. Bot. Syst.* 4: 91. 1845; Collett & Hemsl., *Journ. Linn. Soc. Lond. Bot.* 28: 110. 1890; Dop, *Bull. Soc. Hist. Nat. Toulouse* 57: 206, 210, & 211. 1928; Mold., *Phytologia* 48: 419 & 443. 1981.

Collett & Hemsley (1890) give the natural distribution of this species as "Assam to Ava and Pegu". Dop (1928) cites *Harmand 1862*, *Hayata 679*, and *Poilane 102, 155, 6054, & 6275* from Annam, *Thorel s.n.* from Cambodia, and *Baudouin s.n.*, *Pierre 648*, *Talmy s.n.*, and *Thorel 1591* from Cochinchina. Craib (1912) cites *Kerr 1705 & 1766* and *vanpruk 143* from Thailand, giving the overall distribution of the species as Assam, Burma, and Yunnan.

Recent collectors describe the plant as a shrub, 6 feet tall, the leaves dull-green above, lighter green beneath, slightly hairy, the flowers fragrant, and the corollas "white", and have encounter-

ed it at 600 feet altitude.

The *Majumder & Islam 87*, distributed as *V. canescens*, actually is *V. glabrata* var. *bombacifolia* (Wall.) Mold.

Additional citations: NEW GUINEA: Papua: *Streimann NGF.26189* (W--2899990).

VITEX CAPITATA Vahl

Additional citations: Walp., *Repert. Bot. Syst.* 4: 86 & 88. 1845; Bocq. in *Baill., Rec. Obs. Bot.* 3: 253. 1863; Briq. in *Engl. & Prantl, Nat. Pflanzenfam.*, ed. 1, 4 (3a): 172. 1895; Mold., *Phytologia* 47: 452 (1981) and 49: 466. 1981.

Recent collectors describe this species as a tree or treelet, 3--5 m. tall, with light-green leaves, and have found it growing on small sand dunes in marshes, on rocky windswept slopes, and in rock cracks on rocky hills with *Byrsonima* and *Trachypogon* dominant, at 160 m. altitude. They have found it in flower in February and April and in fruit in May, the flowers "visited by numerous and various bees". The corollas are said to have been "blue with white nectar-guides" on *Davidse & González 15482 & 16081*, "violet-blue with white nectar-guides" on their no. 14611, and "white and violet with yellow nectar-guides" on their no. 14576.

Bunting and his associates describe the plant as having "troncos varios; hojas nuevas de color verde suave, lustrosas especialmente en la haz; corola violeta, lóbulos superiores pálidos, lóbulo inferior más intenso con mancha central bien intensa, uña cremosa; estambres semejantes en color".

Additional citations: VENEZUELA: Apure: *Davidse & Gonzalez 14576* (Ld), *14611* (Ld), *15482* (Ld), *16081* (Ld). Bolívar: *Aristeguita 5283* (W--2925970). Guárico: *Aristeguieta 4187* (N). Zulia: *Bunting, Sanchez, & Alfonzo G. 7319*(Ld), *7530* (Ld).

VITEX CHRYSOMALLUM Steud.

Additional bibliography: Briq. in *Engl. & Prantl, Nat. Pflanzenfam.*, ed. 1, 4 (3a): 172. 1895; Mold., *Phytologia* 48: 453. 1981.

VITEX CILIATA Pierre

Additional bibliography: Walp., *Repert. Bot. Syst.* 4: 30. 1845; Mold., *Phytologia* 48: 453. 1981.

VITEX COCHINCHINENSIS Dop, *Bull. Soc. Hist. Nat. Toulouse* 57: 199--200, pl. 3. 1928.

Additional & emended bibliography: Dop, *Bull. Soc. Hist. Nat. Toulouse* 57: 199 & 210--211, pl. 3. 1928; Mold., *Phytologia* 48: 454. 1981.

Additional illustrations: Dop, *Bull. Soc. Hist. Nat. Toulouse* 57: opp. 200, pl. 3. 1928.

A shrub, 1--2 m. tall; branchlets rounded or subtetragonal, fulvous-pubescent; leaves 3-foliolate; petioles 3.5--4.5 cm. long, round in cross-section, not alate, pubescent; leaflet-blades chartaceous, ovate or ovate-elliptic, apically acute or acuminate, basally rounded or obtuse, asperous and sparsely pilose above.

[to be continued]